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(11)

**EP 1 197 558 A3**

(12)

**EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:  
04.12.2002 Bulletin 2002/49

(51) Int Cl.7: **C12N 15/82**, C12N 9/10,  
C12N 15/11

(43) Date of publication A2:  
17.04.2002 Bulletin 2002/16

(21) Application number: **01122628.9**

(22) Date of filing: **27.09.2001**

(84) Designated Contracting States:  
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU**  
**MC NL PT SE TR**  
Designated Extension States:  
**AL LT LV MK RO SI**

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(30) Priority: **06.10.2000 JP 2000307149**

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(54) **Theobromine synthase polypeptide of coffee plant and the gene encoding said polypeptide**

(57) According to the present invention, the polypeptide of theobromine synthase derived from *coffea arabica* and the gene encoding said polypeptide are provided. As theobromine synthase participates in bio-

synthesis of caffeine, caffeineless coffee would be obtained by preparing a transformed plant, wherein expression of gene encoding said enzyme is inhibited.

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# PARTIAL EUROPEAN SEARCH REPORT

Application Number

which under Rule 45 of the European Patent Convention EP 01 12 2628 shall be considered, for the purposes of subsequent proceedings, as the European search report

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	KATO M ET AL: "Caffeine synthase gene from tea leaves" NATURE, vol. 406, 31 August 2000 (2000-08-31), pages 956-957, XP002173208 ISSN: 0028-0836 * the whole document *	1-9,13, 14	C12N15/82 C12N9/10 C12N15/11
X	MAZZAFERA P. ET AL.: "S-ADENOSYL-L-METHIONINE:THEOBROMINE 1-N-METHYLTRANSFERASE, AN ENZYME CATALYSING THE SYNTHESIS OF CAFFEINE IN COFFEE" PHYTOCHEMISTRY, vol. 37, no. 6, - 1994 pages 1577-1584, XP001040595 * page 1577, column 2, paragraph 3; figure 1; table 1 *	1-9,13, 14	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			C12N
INCOMPLETE SEARCH			
<p>The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC to such an extent that a meaningful search into the state of the art cannot be carried out, or can only be carried out partially, for these claims.</p> <p>Claims searched completely :</p> <p>Claims searched incompletely :</p> <p>Claims not searched :</p> <p>Reason for the limitation of the search:</p> <p>see sheet C</p>			
Place of search		Date of completion of the search	Examiner
BERLIN		1 October 2002	Schönwasser, D
CATEGORY OF CITED DOCUMENTS			
<p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p>		<p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date L : document cited in the application I : document cited for other reasons % : member of the same patent family, corresponding document</p>	

EPO FORM 1503 03/92 (P04007)

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INCOMPLETE SEARCH  
SHEET C

Application Number  
EP 01 12 2628

Claim(s) searched completely:  
1-5,7-12,14,15

Claim(s) searched incompletely:  
6,13

Reason for the limitation of the search:

Present claims 6 and 13 relate to a transgenic plant or a method for producing such a plant defined by reference to a desirable characteristic or property, namely the desirable property of a transgenic plant to have a decreased gene expression.

The claims cover all transgenic plants and methods for producing such plants having this characteristic or property, whereas the application provides support within the meaning of Article 84 EPC and disclosure within the meaning of Article 83 EPC for only a very limited number of such transgenic plants and methods for producing such plants. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Independent of the above reasoning, the claims also lack clarity (Article 84 EPC). An attempt is made to define the product and the method by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible. Consequently, the search has been carried out for those parts of the claims which appear to be clear, supported and disclosed, namely those parts relating to the transgenic plants and methods for producing such plants as claimed in claims 7 and 14 and described on page 5, line 31 to page 6, line 22.

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## PARTIAL EUROPEAN SEARCH REPORT

Application Number  
EP 01 12 2628

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	KATO MISAKO ET AL: "Purification and characterization of caffeine synthase from tea leaves" PLANT PHYSIOLOGY, vol. 120, no. 2, June 1999 (1999-06), pages 579-586, XP002173207 ISSN: 0032-0889 * figure 5; table II *	1-5	
X	SUZUKI T. ET AL.: "Biosynthesis of Caffeine by Tea-Leaf Extracts" BIOCHEMICAL JOURNAL, vol. 146, 1975, pages 87-96, XP001040587 * page 89, column 2, paragraph 2 - page 91, column 2, paragraph 3 * * page 94, column 1, paragraph 2 *	1-5	
P,X	OGAWA M. ET AL.: "7-Methylxanthine Methyltransferase of Coffee Plants" THE JOURNAL OF BIOLOGICAL CHEMISTRY, vol. 276, no. 11, 16 March 2001 (2001-03-16), pages 8213-8218, XP002215148 * the whole document *	1-15	TECHNICAL FIELDS SEARCHED (Int.Cl.7)
P,X	EP 1 055 727 A (MITSUI CHEMICALS INC) 29 November 2000 (2000-11-29) SEQ ID NO:1 * page 2, paragraph 1; example 10 * * page 6, paragraph 2 * * page 6, paragraph 4 - paragraph 5 * * page 8, paragraph 2 - paragraph 4 * -/-	1-15	

EPO FORM 1503 03.82 (P04C:0)

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# PARTIAL EUROPEAN SEARCH REPORT

Application Number  
EP 01 12 2628

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
P,X	<p>ASHIHARA H. ET AL.: "Caffeine: a well known but little mentioned compound in plant science"</p> <p>TRENDS IN PLANT SCIENCE, vol. 6, no. 9, September 2001 (2001-09), pages 407-413, XP002215149</p> <p>* page 407, column 1, line 21 - line 27; table 1 *</p> <p>* page 411, column 2; paragraph 4 - page 413, column 1, paragraph 1 *</p> <p>-----</p>	1-15	<p>TECHNICAL FIELDS SEARCHED (Int.Cl.7)</p>

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ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.

EP 01 12 2628

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on  
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01-10-2002

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1055727 A	29-11-2000	EP 1055727 A2	29-11-2000
		JP 2001037490 A	13-02-2001
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82